

COLUMBUS MEN ASK FOR CYANIDE DATA

Bombard Gager with Queries After his Talk on Feb. 7

By R. E. Christin

The meeting held by the Columbus chapter on Feb. 7 proved a very lively one. It began with a coffee talk by a handwriting expert and ended with a discussion of another "live" subject, sodium cyanide salts.

The coffee talk which followed the dinner was given by W. G. Pengelly, a local man nationally known for his investigations of famous cases, such as anonymous letters of threats to presidents. His work on the famous Cassie Chadwick forgery case was of intense interest and had the members and guests on the edge of their seats.

The principal speaker of the evening was W. M. Gager of the R & H Division of E. I. Du Pont de Nemours, Inc. In the very thorough description of sodium cyanide salts used in heat treating, the speaker traced the source of the salts and gave the five methods of extraction as follows: Castner process, Yellow prussiate process, Schlempe process, Cyanimid process and Bucher process. The Castner process is the most widely used.

The discussion which followed proved that the subject had been well handled by the speaker.

Dr. O. E. Harder of Battelle Institute asked if it was necessary to stir the bath to get a uniform case. Mr. Gager replied that in small diameter and deep pots the upper layer of salt has been known to give a deeper case than the lower portion of the cyanide bath, due to poor oxidation of the salts at the bottom. With wider and shallower pots, there is no trouble.

In answer to Geo. S. McFarland's question as to which cyanide salt is most popular in the trade for case hardening, the speaker said that 75% of the cyanide sold is the straight cyanide (96% NaCN); 15% is the 75% NaCN, and 10% the 30% NaCN. It is impossible to separate the use for which the cyanide is purchased, since it might be used for a number of purposes.

One member asked what material is recommended for cyanide pots, and was told that mild hot rolled seems to be the best. The plates are welded for rectangular pots. The presence of 8% nickel in the steel will prolong the life.

Sam Epstein, Battelle Institute, asked if the case with the higher nitrogen content was more brittle than that with lower nitrogen, and was told yes.

R. E. Christin, Columbus Bolt Works, inquired how deep a case could be secured by the Shimer process and is this process more economical than pack hardening? Mr. Gager said that the case would be about 0.030" deep in 3 hours. He said that any depth of case requiring more than one hour in cyanide is more economical by the pack method. Of course, cyanide hardening adds nitrogen to the case, whereas packing in carburizing compound does not.

J. C. Smith, Bonney Floyd Co., asked if the black coating on steel, as produced by treatment in sodium nitrate, was adherent. He was told yes, until oxide gets too thick when there is a tendency to flake off. The black oxide coating makes the article somewhat less susceptible to atmospheric corrosion than the untreated method.

Dr. H. C. Russell of Battelle Institute asked if Nitralloy was better at picking up nitrogen than plain carbon steel, and the answer was yes, at 1050° F., but at 1500° F., there is little to choose between the two as to rate of pick up.

LUDLUM SHIFTS PERSONNEL

Templeton, Boyne and Sherman Assume New Duties With Ludlum Steel Co.

C. B. Templeton, formerly assistant to the president of Ludlum Steel Co., is now assistant to the vice-president in charge of sales. Beside other duties, Mr. Templeton will have charge of all the company's advertising activity which was formerly handled by the Associated Alloy Steel Co. C. B. Boyne, a member of the Ludlum organization since 1913, succeeds Mr. Templeton as assistant to the president.

Another recent Ludlum announcement was to the effect that Coolidge Sherman has been appointed assistant general sales manager. Mr. Sherman has held various positions in the Ludlum sales organization since 1916.

SUBMARINE EPIC RECOUNTED AT LEHIGH DINNER MEETING

Commander Ellsberg Tells Story

By O. V. Greene

The annual Dinner Meeting of the Lehigh Valley chapter was held at the Hotel Traylor, Allentown, on Feb. 3. The speakers were President W. B. Coleman and Commander Edward E. Ellsberg. Mr. Coleman gave a very complete account of the Society which was extremely interesting to everyone.

Commander Ellsberg of submarine rescue fame gave an intensely interesting account of the raising of the submarine S-51. The narrative of this problem of under-sea engineering was told so well that everyone was held spellbound for an hour and a half. The difficulties encountered in raising the S-51 make this story one of the immortal epics of the sea.

Commander Ellsberg is at the present time chief engineer of the Tide Water Oil Sales Co. He has had a varied experience in naval work. In 1917 he constructed and rebuilt the German liners for transports. He helped to organize mine sweeping squadrons and was in charge of the construction of the dreadnaught Tennessee. As salvage officer of the U. S. Navy he succeeded in raising the submarine S-51, receiving the Navy Distinguished Service Medal for his work.

THREE OHIO GROUPS PLAN BIG MEETING

Cincinnati Host to Columbus and Dayton on April 13

The fifth annual Tri-Chapter meeting of the Cincinnati, Columbus, and Dayton chapters will be held at Cincinnati this year. The date is set for Thursday, April 13. The three participating chapters cordially invite and urge all other chapters to send delegations. Special invitations have been forwarded to Indianapolis, Muncie, Cleveland, Canton-Massillon, and Pittsburgh chapters.

In planning the meeting this year, the Cincinnati chapter felt that an innovation might be in order, and so have arranged for a "One-day Convention" to take the place of the plant trips scheduled in previous years. There will be two technical sessions during the day, and in the evening a dinner and an address on a broad subject of general interest.

The evening talk has been planned to appeal to technical, operating, sales, and executive men alike. The Cincinnati chapter is fortunate in having secured Professor H. M. Boylston, of Case School of Applied Science, who has chosen to speak on the subject, "Metallurgy Marches On". Prof. Boylston is well-known for his many contributions to the technical literature and particularly for his book, "Iron and Steel", and his annual survey articles on "Recent Developments in Metallurgy".

The morning session will be held at 10:30, and will deal with the general subject of gears. W. E. Sanders, of the metallurgical department of Buick Motor Co., will present a paper on "Gears and Gear Forgings". This will cover various phases of the subject and will be of interest to both operating men and executives.

At 2:30 Thomas Dockray will speak at the Sheet Metal Forming session. His subject is "Sheet Steel and Its Performance". Mr. Dockray is metallurgist of Eastern Rolling Mill Co., Baltimore. He presented a paper at the Boston Convention on the drawing quality of sheet steel.

The headquarters for the day will be at the Cincinnati Engineers' Club, southeast corner of Ninth and Race Streets. Ample parking facilities will be provided near the club, so that those who drive will have no trouble about parking conveniently. Detailed arrangements for the evening dinner and meeting place will be announced to the various chapters within the next few days. Any chapters that are planning to send delegations are requested to notify N. C. Strohmenger, secretary, Cincinnati chapter, Tool Steel Gear & Pinion Co., Cincinnati.

Invitations have been extended to the National officers of the Society. Secretary W. H. Eisenman is planning to attend, and it is hoped that many of the other officers will also be able to be present.

ENJOY TALK ON HARDENING

Capacity Crowd at Rhode Island Hears Jordan Korp at February Meeting

By S. A. Woodruff

Jordan Korp of the Leeds & Northrup Co. was the speaker at the Feb. 1 meeting of the Rhode Island chapter, held at the rooms of the Providence Engineering Society. The subject of Mr. Korp's talk was, "Procedure of Correct Hardening." A capacity audience attended the meeting and gave Mr. Korp a rising vote of thanks.

(Editor's Note—Mr. Korp's interesting and practical talk has been reported several times in the REVIEW. A full account was printed in the October, 1932 number.)

TALK ON STAINLESS STIRS DISCUSSION

Over 300 Hear E. C. Smith at Pittsburgh in February

By George P. Halliwell

The February meeting of the Pittsburgh chapter was held in the William Penn Hotel in conjunction with the Engineers' Society of Western Penna. About 300 members and guests listened to an interesting talk by E. C. Smith, Republic Steel Corp., on "Stainless Irons."

Abstracts of Mr. Smith's talks as delivered before other chapters were printed in the REVIEW for January, 1933.

A lively and interesting discussion followed. With respect to the latter F. N. Speller of National Tube Co. acted in the capacity as chairman. He initiated the discussion with a few general remarks on thin oxide films and their relation to resistance to corrosion.

H. D. Newell of Babcock & Wilcox pointed out that coarse grained material in general had better creep properties than fine grained material but that the latter had better ductility and corrosion-resistant properties at temperatures above 1100° F. A change in composition from 18- to 18-14 steel gave a reversal of conditions. Mr. Newell then suggested that for materials operating under corrosive conditions at high temperatures and pressures, it is probable that the maintenance of corrosion resistance is of primary importance and that the loss in creep strength due to grain size is of a secondary value.

E. C. Bain and R. H. Aborn of the United States Steel Corp. supplemented these remarks by adding that it was grain size and not the presence of martensite that contributed to the low ductility of welds. In connection with the practice of "retaining a balance of elements to retain a small trace of ferrite" in order to reduce carbide precipitation, Bain and Aborn characterized this as unreliable practice and of being effective only where the proportion of ferrite is considerable, whereby general precipitation throughout the grain is substituted for localized precipitation at the grain boundary.

Dr. C. M. Johnson of Crucible Steel Co. of America warned against the general attitude of optimism concerning the resistance to corrosion of the stainless irons and steels under all conditions. He cited a number of instances which came under his observation where in the stainless steels did not retain their original finish or were even slightly pitted.

H. E. Luger of American Sheet & Tin Plate Co., T. A. Graham of National Tube Co. and C. A. Scharschu of Allegheny Steel Co. gave extensive information on the physical properties, workability and the wide application of stainless iron and steels.

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A five volume "library" of data on these phases of fabricating aluminum, prepared by the Aluminum Company of America, will be sent to members of the Society who send in a request to A.S.S.T. headquarters, 7016 Euclid Ave., Cleveland.

Each of the carefully prepared booklets presents a wealth of valuable information on aluminum and its alloys. The five booklets contain 144 pages and many illustrations. Write to A. S. S. T. offices today for your set, as the number available is limited.

1933 METAL CONGRESS AND EXPOSITION TO BE HELD IN DETROIT WEEK OF OCT. 2-6

Directors Fix Date at Recent Meeting; Show will be at Convention Hall; Headquarters at Statler

For the first time since 1927, the annual National Metal Congress and Exposition will be held in Detroit. By unanimous action of the Board of Directors of the American Society for Steel Treating at their recent meeting, the week of Oct. 2, 1933, was fixed as the date for holding the fifteenth annual program of technical sessions and the great exhibition of the products and equipment of the metal industries. Events are scheduled from Monday through Friday.

TELLS WORCESTER HOW FORD USES THE STAINLESS STEELS

J. L. McCloud Technical Speaker

By R. R. Tatnall

The December meeting of the Worcester chapter, was held on the 17th at the Aurora Hotel. About 30 members and guests enjoyed the dinner, following which Harry Arter, director, Arter Grinding Machine Co. gave a coffee talk on Russia. Mr. Arter has recently returned from a six-month's business trip in Russia. He described a Russian factory as a fortification with barbed wire entanglements and sentries. He also remarked on the lack of discipline in the Russian factory. Workers came and went at all hours, gathered together for talks and smokes, and without ceremony, walked in on conferences to present grievances to the administering officials.

The speaker of the evening was J. L. McCloud, metallurgist with the Ford Motor Co. Mr. McCloud spoke on stainless steels as Ford is using them. He said Ford is using the 18 chrome, 8 nickel and the 18 chrome types. These are supplied in sheets, and radiator shells, light deflectors, etc., are stamped out and drawn to shape. These parts are then polished and buffed in batteries of automatic machines.

The dies for deep drawing these parts are made with slightly greater clearances and allow for somewhat greater "spring back" than for ordinary steel. Wearing edges are finished by stoning to prevent scratching of the stainless steel part. A special lubricant comprised of cup grease, lithophone, sulphur, talc, and machine oil is used. The sulphur in this compound serves to polish and clean wearing surfaces, while the remaining ingredients are solely lubricants.

NEW HAVEN STUDIES TESTING, SEES ACTUAL DEMONSTRATIONS

Phillips and Colton Speak

By P. L. Clark

The January meeting of New Haven chapter, held Jan. 9 in the department of engineering mechanics at Yale University, was an educational meeting devoted to the physical testing of metals.

Prof. Arthur Phillips gave a short introductory talk on the characteristics of metals and possible future developments. He then introduced Prof. G. W. Colton who spoke on physical testing and the compiling of engineering information.

The 90 members and guests were then taken to the testing laboratories where they were broken up into groups for the better observation of the equipment and demonstrations. A corps of assistants operated the various testing machines so that the members were able to observe the practice of making the tests and have the methods and results explained to them.

MITCHELL WITH ILLINOIS STEEL

Dr. Walter M. Mitchell, formerly with Republic Steel Corp., Massillon, O., has been appointed metallurgical engineer in the sales department of Illinois Steel Co. Dr. Mitchell's activities will be devoted to development and promotional work with corrosion and heat resisting alloys for the subsidiary manufacturing companies of U. S. Steel Corp. in the eastern districts. His headquarters will be at the offices of Illinois Steel Co., 71 Broadway, New York.

Convention Hall in Detroit has been selected to house the Exposition, as the facilities there were found to be entirely satisfactory at the time of the last Detroit show.

A.S.S.T. headquarters will be established at Hotel Statler where every convenience for holding meetings, dinners, etc., is available.

Already plans for the show and sessions are maturing. Floor plans of the exhibit spaces are being laid out and will be mailed to previous Exposition exhibitors about April 15. Firms who have never exhibited in the show will be given opportunity to reserve space shortly afterwards.

The A.S.S.T. Publication Committee, of which A. B. Kinzel, Union Carbide and Carbon Research Laboratories, is chairman, is now working on a technical program for presentation during the 10 sessions. Several innovations are under consideration, and the word is that the 1933 National Metal Congress programs will attain new high levels of interest and actual value.

Invitations to participate in the National Metal Congress have again been extended to the Iron and Steel Institute of Metals divisions of the American Institute of Mining and Metallurgical Engineers, the Iron and Steel and Machine Shop Practice divisions of the American Society of Mechanical Engineers, the Production Activity division of the Society of Automotive Engineers, the American Welding Society and the Wire Association.

It is expected that all of these will hold their usual interesting sessions during the Congress and Exposition.

GROSSMANN COVERS GRAIN SIZE EFFECT

Cleveland Names Next Season Committees at Big Meeting

By H. B. Pulsifer

The 6th of March found the City of Cleveland with every bank closed and all industrial and social activities at their lowest ebb. There were inquiries about the cancellation of the monthly meeting. But 60 reported for the dinner and some 250 for the addresses. It was a very cheerful and enthusiastic meeting.

First Chairman Van Horn presented National Secretary W. H. Eisenman. In reflecting on Bill's discourse one is impressed with the conclusion that if those two eminent metallurgists Marc Grossmann and Bill Sykes, had entered into matrimony at any time before the meeting they might have avoided a good deal of publicity.

Chairman Van Horn then announced several committee appointments. The program committee for next season will have H. P. Croft for chairman. The educational committee is to be headed by G. T. Williams. The nominating committee consists of the three most recent past chairmen: W. E. Benninghoff, J. S. Ayling and W. H. White. The outing committee is headed by Hugh Brown.

Dr. Marcus A. Grossmann was then presented by the chairman and the remainder of the evening was spent in the abstractions and technologies of advanced steel metallurgy.

Dr. Grossmann first outlined the effect of alloying elements on the depth of hardening when steel is quenched. The physics of the effect of grain size on properties was then outlined. Pictures of test pieces covering enormous ranges in grain size were shown and their properties compared when plotted on charts. The meaning of the McQuaid-Ehn grain size was very clearly explained and means for its control was suggested.

THE REVIEW

Devoted to the interests of the American Society for Steel Treating

A Review of the Activities of the Chapters and National Organization of the A. S. S. T.

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Managing Editor

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A SUGGESTION THAT BRINGS YOU MORE NEWS

A suggestion emanated from the recent meeting of the Board of Directors which should result in a more newsy REVIEW. The suggestion was that chapter reports should eliminate abstracts of talks which have been delivered to more than one chapter in the Society.

It was felt that there had been too much repetition in the reports, and in place of continuing to record chapter talks already printed in the REVIEW it was suggested that in such cases the emphasis be laid on the discussion of the talks.

This means that in the future, the chapter stories will be more interesting, will contain more names of members, and will have more news value. Many of the stories in this issue were written to conform with this suggestion.

A. S. S. T. Budget For Current Year

INCOME

Membership Dues	\$ 48,500.00
Sustaining Exhibit Membership	2,225.00
Metal Progress	43,625.00
The Review	107.00
Bound Transactions	500.00
Books Purchased	150.00
Books Published	2,000.00
Transactions	1,425.00
National Metals Handbook	6,125.00
Pencils, Pins and Buttons	25.00
Merchandise Sales	400.00
Convention Program	1,200.00
Interest Earned	5,800.00
Interest Earned—H. M. Howe Fund	156.00
Discount Earned	500.00
Sundry Income	300.00
Convention	25,000.00
From Surplus	3,242.00

\$141,280.00

EXPENSE

Apportionment of Dues to Chapters	\$ 20,370.00
Support of Chapters	1,000.00
Metal Progress	44,260.00
Transactions	11,680.00
The Review	1,811.00
Books for Library	50.00
Books Purchased for Resale	110.00
Books Published	1,500.00
National Metals Handbook	9,531.00
Merchandise Purchased for Resale	200.00
H. M. Howe Medal Fund Expense	20.00
E. D. Campbell Memorial Lecture	500.00
National Committees	2,008.00
Directors	1,500.00
President's Office	600.00
Accounting Department	3,624.00
Secretary's Office	8,406.00
General Expense	9,110.00
Convention	25,000.00

\$141,280.00

BOSTON HEARS F. R. PALMER ON WATER HARDENING STEEL

Meeting Attended by 125

By Howard E. Handy

Boston chapter's January meeting was held at Massachusetts Institute of Technology, Cambridge, on Jan. 6. The speaker of the evening was Frank R. Palmer, assistant to the president, Carpenter Steel Co., who made his fourth appearance in eight years before the Boston chapter membership. His subject on this visit was "Water Hardening Tool Steel".

In the absence of Chairman Ashworth, A. D. Bach took charge of the technical discussion during which Mr. Palmer answered many questions regarding timbre and also the relation of design to heat treatment, as it is applied to tools made from water hardening steels.

About 125 attended the evening meeting, 75 of whom honored Mr. Palmer by their attendance at an informal dinner served at Walker Memorial prior to the evening session.

BUILD NEW TYPE FURNACE

American Gas Furnace Co., Elizabeth, N. J., has announced what they call a "universal heat treating tool," a bell-type retort furnace equally well adapted for gas carburizing, nitriding, bright annealing, hardening, normalizing, annealing or tempering. The furnace can do any of these tasks in almost immediate succession by the use of extra bells.

Its flexibility makes it ideal, the makers say, for the jobbing shop and, in batteries, for production work. Details may be obtained from Elmer C. Cook, American Gas Furnace Co., Elizabeth, N. J.

HOUGHTON CO. ADDS PICKLING LINE

E. F. Houghton & Co., with plants in Philadelphia, Chicago and Detroit announce that they will manufacture and sell the pickling equipment formerly made by Weaver Brothers Co., Cleveland. J. C. Weaver, formerly vice-president of the latter company, is now manager of the cleaner and pickling products department of E. F. Houghton & Co.

RECORD OF JANUARY DIRECTORS' MEETING

Meeting of the Board of Directors

A.S.S.T. Headquarters

7016 Euclid Ave., Cleveland, Ohio

Friday, Jan. 20, 1933

Present: W. B. Coleman
W. H. Phillips
W. H. Eisenman
A. T. Clarage
A. H. d'Arcambal
C. F. Pascoe
H. D. McKinney
H. G. Keshian
R. S. Archer

The meeting was called to order at 10 o'clock. Upon motion by Mr. d'Arcambal, seconded by Mr. McKinney and unanimously carried the following organization resolution was adopted:

In order to comply with the laws of the State of Ohio, under which the American Society for Steel Treating is incorporated and in which the directors elect their own officers, therefore be it resolved that the following are to constitute the officers of the American Society for Steel Treating for the year 1933:

President W. B. Coleman

Vice-president W. H. Phillips

Treasurer A. T. Clarage

Secretary W. H. Eisenman

Upon motion by Mr. Clarage, seconded by Mr. McKinney, the minutes of the previous meeting held in Buffalo, October 4 were approved.

Upon motion by Mr. Clarage, seconded by Mr. Archer, the following resolution was unanimously approved:

"Resolved, that it is the interpretation of the constitution by this board that action of the board of directors (for example in the case of committee appointments) be confined to stated or called meetings, except that if action by letter or wire seems necessary action be only by unanimous expressed consent implying waiver."

The national committees were then given consideration.

Upon motion by Mr. Eisenman and seconded by Mr. d'Arcambal the entire list of committee appointments was approved.

A list of the National Committees appears on page 2.

Treasurer Clarage then presented to the board of directors for their consideration a number of financial reports previously approved by the finance committee for submission to the board.

These reports were as follows:

Balance Sheet

Investments List

Advertising Accounts Receivable

Inventory

Income and Expense 1932

Income and Expense Buffalo Convention.

All of these reports were given careful study by the board of directors and upon motion made, seconded and unanimously carried were accepted as presented.

Treasurer Clarage then presented the budget for 1933 which had been prepared for the board by the finance committee.

The remainder of the session was devoted to a discussion of the budget and various items contained therein and confirmation was left until the next day.

Upon motion made, seconded and unanimously carried, the meeting adjourned at 5:15 p. m.

Meeting of Board of Directors

A.S.S.T. Headquarters

January 21, 1933

Present: W. B. Coleman
W. H. Phillips
W. H. Eisenman
A. T. Clarage
A. H. d'Arcambal
H. D. McKinney
C. F. Pascoe
H. G. Keshian
R. S. Archer

The meeting was called to order by President Coleman, and the continuation of the discussion of the budget was the first order of business.

It was moved by Mr. Keshian and seconded by Mr. Archer and unanimously carried that the budget be approved as submitted. [The condensed budget is printed in another column.]

Mr. Clarage then presented to the board the minutes of the meeting of the finance committee, which were as follows:

"Minutes of the Meeting of the

Finance Committee

Thursday, Jan. 19, 1933

"Present: A. T. Clarage

W. C. Bell

W. B. Coleman

W. H. Eisenman

"As the first order of business Chairman Clarage submitted to the committee various financial statements for the year 1932.

"The first item considered was the balance sheet which was approved as submitted.

"A general survey was then made of the A.S.S.T. investments, together with the reading of recommendations from the Cleveland Trust Co., trustees of the A.S.S.T. investments.

"The committee was in agreement with the recommendation of the trust officers of the Cleveland Trust Co., that no change in the investments should be made at this time.

"The finance committee then surveyed the advertising accounts receivable and gave consideration to the accounts that were prior to August, 1932.

"The inventory of the A.S.S.T. at the close of business on December 31, 1932 was presented to the committee and approved with recommendations that the same be presented to the board of directors.

"Very little consideration was given to the income and expense statement for the month of December inasmuch as the same was included in the income and expense statement for the year, to be considered later.

"The treasurer then presented the income and expense statement for the 1932 National Metal Exposition and this was approved for submission to the board of directors.

"Consideration was then given by the committee to the advisability of placing some of the funds of the Society in other depositories than those used at the present time.

"Consequently, upon motion by Mr. Clarage, seconded by Mr. Bell and unanimously carried the following motion was adopted:

"We recommend that from the income from dues for this year amounts up to \$5,000.00 or \$10,000.00 be deposited in two or three months-time certificates of deposit in one of the stronger banks in New York City, such as the Guarantee Trust or the Chase National Bank, subject to such arrangements as can be made later."

"Consideration was then given to the preparation of the 1933 budget.

"With reference to the distribution of the salary of the secretary, it was recommended to the board that the distribution be made as follows: 35% to Metal Progress, 35% to the show, 30% to Society activities.

"Upon motion properly made, seconded and unanimously carried, the budget was agreed upon as submitted to the board.

"A tentative budget for the 1933 convention was then prepared and is herewith submitted.

"Chairman Clarage indicated that the annual reports from the secretary and treasurer of the chapters as required at present by the Constitution were received without any uniformity, and in order to assist the chapter secretaries in presenting a report to the national office in which the important items would be indicated a set of forms was prepared and presented to the finance committee for their suggestions.

"Upon motion properly made, seconded and unanimously carried the forms as submitted by Mr. Clarage for annual reports from the chapters were recommended to the board for their approval."

It was moved by Mr. Eisenman, seconded by Mr. d'Arcambal and unanimously carried that the board of directors approve the recommendation of the finance committee to use an additional depository for the funds of the A.S.S.T., such as Guarantee Trust or Chase National Bank, New York City.

Upon motion by Mr. Clarage, seconded by Mr. McKinney and unanimously carried the suggested forms for report by the secretary-treasurer of the chapters of the annual condition of the chapters as required by the constitution were approved, and the secretary was instructed to send them out prior to the next reporting period.

Upon motion by Mr. McKinney, seconded by Mr. Keshian and unanimously carried, Mr. W. S. Bidle was authorized, as a member of the Finance Committee, to sign checks when one signature on the check was that of the secretary or treasurer, as provided for in the constitution.

Upon motion by Mr. Keshian, seconded by Mr. Pascoe and unanimously carried it was decided that the bond of the treasurer be reduced to \$1,500.00, or a larger amount if the same is necessary, in order to secure the minimum rate on the blanket bond covering officers and employees of the Society.

The next item of business was the consideration of the activities of the Society for 1933.

The secretary then presented a report of the cities inviting the A.S.S.T. to hold its 1933 National Metal Congress and Exposition in their cities. These cities were as follows: Toronto, Atlantic City, Cincinnati, Milwaukee, Chicago, Detroit.

These cities and their facilities were all given very careful consideration and the board of directors took into account the facts relating to each, and after considerable discussion and further thought it was moved by Mr. d'Arcambal, seconded by Mr. Phillips and unanimously carried that Detroit should be selected for the convention city for 1933 and that the date of the congress and exposition should be the week of October 2.

The recommendation of the secretary that Hotel Statler be selected as the headquarters for the A.S.S.T. received the unanimous approval of the board of directors.

The secretary then presented a progress report on the preparation of National Metals Handbook for publication this year in which he stated very satisfactory progress was being made but that a definite date for publication had not as yet been determined although it was planned to send it to the printer as soon as possible.

Upon motion by Mr. d'Arcambal, seconded by Mr. Pascoe and unanimously carried it was decided that the honorarium for the Campbell Memorial Lecture in 1934 should be \$300.00 and that the lecturer should be presented with a certificate of appreciation.

Upon motion by Mr. d'Arcambal, seconded by Mr. Phillips and unanimously carried, Dr. V. N. Krivobok of the Carnegie Institute was selected as the Campbell Memorial Lecturer for 1934.

President Coleman then presented some items for the consideration of the board, informing them of the thoughts he was presenting on his visits to the chapters to secure from the chapter members through their executive committees a greater appreciation on the part of the membership of their responsibility to inform executives and other members of the companies with which they are connected of the advantages obtained from the A.S.S.T. and at the same time to encourage on the part of industry a feeling of greater responsibility for the support of the activities of the Society.

Upon motion by Mr. d'Arcambal, seconded by Mr. Phillips and unanimously carried a committee, consisting of Zay Jeffries, chairman, Colonel A. E. White, member, Frederick G. Hughes, member, was appointed in an advisory capacity to the board to decide by May 1, if possible, these two questions:

1. Should the method of nomination of national officers as now provided for by the constitution of the Society be changed?

2. If the committee decides that a change is desirable, what method of nomination would it suggest?

Upon motion by Mr. Archer, seconded by Mr. Clarage and unanimously carried the following motion was adopted:

"That in the opinion of the board of directors Metal Progress should stress as its central theme the use of metal as distinguished from non-metallic material and that feature articles should be run to keep the membership acquainted with present uses of metals, new uses in process of development and proposed uses. These articles are to be reinforced with editorial comments to bring home to the entire membership of the Society the direct advantages for every member to make personal effort to increase the use of metal."

Upon motion properly made, seconded and unanimously carried, the meeting adjourned at 4:45 p. m.

AUDITORS' REPORT IN NEXT ISSUE

The financial story of A.S.S.T. in 1932 as contained in the balance sheet and income and expense statements was not returned by Ernst and Ernst, auditors, in time for inclusion in this issue. It will therefore appear in the May issue.

700 ATTEND JOINT STAINLESS MEETING

Philadelphia in Big Meeting; Architectural Uses Stressed

By Adolph O. Schaefer

Feb. 23 found the Philadelphia chapter sharing in a joint meeting on "Stainless Steel" with the Philadelphia sections of the A. S. M. E., the American Welding Society, and the American Institute of Architects. The meeting was sponsored and arranged by the United States Steel Corp. A crowd of about 700 people enjoyed the meeting.

Dr. Marcus A. Grossmann of Illinois Steel Co. delivered the major address of the evening. He reduced the metallurgy of the 17% chromium and the 18-8 types of stainless steels to its fundamentals, and told of many applications of both.

Of particular interest were his observations of the effects of corrosion on the decorative trim used on the Chrysler and the Empire State buildings in New York.

D. T. Haddock, consulting engineer of American Sheet & Tin Plate Co., had many photographs of applications of stainless steels in architectural work.

Fred T. Llewellyn, chairman of the welding committee of United States Steel Corp., gave a very thorough and valuable discussion of all the known methods of welding these materials.

Many others present contributed to the discussion, among them were H. H. Harris, president of General Alloys Co.; Norman L. Mochel, chairman of the Philadelphia chapter who acted as chairman of the meeting, and Dr. T. Holland Nelson, consulting metallurgist.

A very large and complete exhibit was a feature of the meeting. All forms of stainless steel products were on display.

HEARS HISTORY OF IRON FROM 1540 ON

New Jersey Hears d'Arcambal, Mathews Since First of Year

By Ernest O. Olds

About 125 members and guests of the New Jersey chapter gathered on the evening of Feb. 14 to hear Dr. John A. Mathews, vice-president of Crucible Steel Co. of America.

As a hobby of many years, Dr. Mathews has collected an unusually complete library covering the history of iron and steel. In it are to be found all of the principal books, dating from 1540 A.D. to the present, relating to metallurgy. From references and slides taken from this collection and also from his own wide experiences in the steel industry, Dr. Mathews very ably presented his interesting and instructive talk on "The Past, Present and Future of Ferrous Metallurgy." The considerable discussion following his talk indicated the great interest all present had taken, in the subject.

On Jan. 9 an equally large crowd gathered to hear A. H. d'Arcambal, metallurgist for Pratt & Whitney Co., give an interesting and practical talk on the machinability of steel.

Some time ago Mr. d'Arcambal requested that no further reports of his talks be printed in the REVIEW, and we are yielding to his request.

WELD COURSE OPENS APRIL 3

Lincoln Electric Offers 6-Day Course in Design for Welded Construction

The John Huntington Polytechnic Institute, Cleveland, in cooperation with Lincoln Electric Co., will offer another course in "Designing for Welded Construction" beginning April 3. The course consists of a week of intensive work, six days being spent in the Lincoln welding school where demonstrations are given and practice obtained in the operation of the electric arc.

Each evening a lecture on designing for arc welded construction is given at the Institute. Enrollment is limited to 30 men. Applicants should be college graduates in engineering or have equivalent practical experience. Further information can be secured from E. W. P. Smith, P. O. Box 683, Cleveland.

CINCINNATI MEN INVESTIGATE HARDENING POWER AT MEETING

B. F. Shepherd is March Speaker

By N. C. Strohmenger

We had a long but interesting and valuable discussion at the March meeting of the Cincinnati chapter after B. F. Shepherd of Ingersoll-Rand Co., Phillipsburg, N. J., presented the subject of "Steel Personality."

In answer to a question he stated how various steels could be picked out for quality by a simple fracture examination which would tell them if inclusions are present, or the steel is of improper grain size. It was mentioned they prefer this method to that of the acid etching for finding defects.

Asked about tool steels, Mr. Shepherd emphasized the hardenability test for determining the normality of steel as preferable to the chemical analysis. Experience has shown them that the hardenability test is also better than using the method of carburizing the piece and thus arriving at normality and grain size. Mr. Shepherd logically explained how the melter of steel plant can be responsible for being able to furnish certain steel with a harden-

ability that is different from same analysis of steels made by another melter in the same steel plant. We had a good attendance.

BALTIMORE SPENDS EVENING IN STUDYING ALLOY STEELS

Earl C. Smith is Speaker

By Stanley P. Watkins

The regular monthly meeting of the Baltimore group was held on Jan. 30, at the Engineers Club of Baltimore. The well-attended meeting was presided over by Chairman A. L. Feild, who introduced the speaker for the evening, Earl Smith, chief metallurgist for Republic Steel Corp. Mr. Smith's subject was "Alloy Steels" as concerns their utility as tools.

(Editor's Note—Two informative reports of Mr. Smith's fine talk were printed in the November, 1932 issue of the REVIEW.)

The nature of Mr. Smith's talk was such as to bring forth a lively discussion from his audience. The meeting adjourned at a late hour, and it was the consensus that this was the most successful meeting held by the chapter since its inception.

ONTARIO STUDIES NITRIDING

January Meeting Features Homerberg and a Description of New Zealand

By J. W. McBean

At the January meeting of the Ontario chapter a very interesting and timely coffee talk was given by John W. Collins on the subject of New Zealand. A large number of beautiful slides were used as illustrations.

The technical paper on "Nitriding Practice" was presented by Dr. V. O. Homerberg, Massachusetts Institute of Technology.

(Editor's Note—A number of reports of Mr. Homerberg's nitriding talks before chapters have appeared in the REVIEW. Two may be found in the June, 1932, number.)

Timken Steel and Tube Co. has announced the appointment of Delaware Steel Service, Inc., as exclusive representatives in the Philadelphia district. This company, with general offices and warehouse at 1614 Summer St., Philadelphia, is comprised of Gustaf Peterson and G. F. Wilson. Stuart B. Mathews is also associated with them. Mr. Peterson and Mr. Mathews are members of the Philadelphia chapter of the Society.

SEND IN THE COUPON TO GET THESE USEFUL PAMPHLETS

X-Rays in Industry

General Electric X-Ray Corp. has available a profusely illustrated brochure entitled "Industrial Application of the X-Ray", which gives the complete story of the field of application of this modern inspection tool. Valuable information is presented. Bulletin Ma-6.

Heat Distribution

The advantages gained by uniform temperature distribution throughout furnace charges are fully described in a publication of Westinghouse Electric & Manufacturing Co. In properly designed electric furnaces, heat can be accurately distributed and controlled, with resultant great savings in cost. Bulletin Ma-497.

Extensometer

A simple but rugged extensometer has been developed by Union Carbide & Carbon Research Laboratories. A booklet describes how it works and how to use it for determining either yield point or as a strain gauge to show elongation under specified load. Bulletin Ma-63.

High Cr Cast Iron

A pamphlet describing foundry production of cast irons containing from 15 to 30% of chromium has been issued by Electro Metallurgical Co. These cast irons do not grow or scale after repeated heatings and are excellent for high temperature work. Bulletin Ma-16.

Architectural 18-8

A fund of valuable information on the architectural application of Enduro stainless steel is contained in a brochure of Republic Steel Corp. Facts are presented on the fabrication, properties, shapes and finishes available. Well illustrated. Bulletin Ma-217b.

New Welding Method

Bundy Tubing Co. offers a 16-page "picture book" giving the complete story of the spectacular process of production welding without flame or arc by their new hydrogen electric process. Photomicrographs showing structure of welds, proof of strength, applications, etc., are presented. Bulletin Ma-93.

Alloys of Aluminum

Data and tables describing the physical properties and chemical constituents of the several alloys of aluminum are presented in a carefully prepared booklet issued by Aluminum Co. of America. An authoritative discussion of these alloys. Bulletin Fe-54.

Beryllium Copper

A new copper alloy possessing excellent physical properties which may be greatly improved by heat treatment is described in a booklet of American Brass Co. Adding 2.25% beryllium to pure copper produces the remarkable properties described in the booklet. Bulletin Ma-89.

Furnaces and Burners

Photographs and descriptions of practically every type of heating furnaces are contained in a folder recently put out by Surface Combustion Corp. to describe its scope of activities as manufacturers of standard and special furnaces and burners. Bulletin Fe-51.

Heat Treating Data

Brief but accurate summaries of the proper treatments for annealing sheets, wire, welded tanks, malleable castings and forgings are given in a book published by Brown Instrument Co. Normalizing, tempering, hardening and carburizing recommendations as well as many special treatments are included. Bulletin Fe-3.

Stabillog

Continuous rather than batch processes are controlled at all times by Foxboro Co.'s new Stabillog, in which a differential pressure motor moves the throttling range of the master valve in anticipation of variations in the rate of change at the controlled point. A booklet thoroughly describes it. Bulletin Fe-21.

Ingot of Quality

Their new ingot stripper produces fine big-end-up ingots at lower cost than is now experienced in producing ordinary ingots of indifferent quality, says Gathmann Engineering Co. in a new booklet. Operation is economical even when the plant runs at only 10% of capacity. Bulletin Ja-13.

Turbo Compressors

A series of three bulletins is available from Spencer Turbine Co. describing their Turbo Compressors for oil and gas fired equipment and foundry cupolas. Sizes range from 100 to 2,000 cu. ft., 1 to 300 h. p., 8 oz. to 5 lbs. Bulletin Fe-70.

Furnace Parts

Various parts for furnaces made from alloys manufactured by Driver-Harris Co. are pictured and described in an interesting publication. Complete performance data and specifications of Nichrome and Chromax heat resisting alloys are given in the booklet. Bulletin N-19.

Atmosphere Control

Furnaces equipped with "Atmosphere Control" as manufactured by Hevi Duty Electric Co. are described in a new bulletin. Operation of the atmosphere control device is described and specifications are presented. Bulletin Ja-44.

Welding Mn Steel

Metal and Thermit Corp. offers a new bulletin describing the Murex method of welding manganese steel which utilizes a heavily coated chromium-nickel rod for a strong, ductile joining material and overlays it with wear-resisting manganese steel containing a little nickel. Bulletin Fe-64.

How to Test Wear

Tests of lubricants or of wear of moving parts may be made accurately with a new machine, made by Timken Roller Bearing Co. A bulletin tells how the machine tests the load carrying capacity of lubricants and measures the friction and wear of materials. Bulletin M-71.

Cut Forging Costs

An 8-page reprint has been issued by Electric Furnace Co. which illustrates various types of automatically controlled continuous, semi-continuous and batch type forging furnaces and shows the advantages and savings effected by the installation of modern forging furnaces. Bulletin Ja-30.

Allegheny 46

This alloy has strength at high temperature and couples corrosion resistance with ease of fabrication. Allegheny Steel Co. has issued a bulletin covering the chemical and physical properties of this low alloy heat and corrosion resisting steel which has many applications in furnace equipment. Bulletin Fe-92.

Scleroscopes

The model D standard recording scleroscope is described and illustrated in a recent publication of Shore Instrument Co. The theory and practice of hardness testing with this portable machine as described in this bulletin reveal a fund of valuable facts. Bulletin S-33.

Heat Resisting Alloys

Authoritative information on alloy castings, especially the chromium-nickel and straight chromium alloys manufactured by General Alloys Co. to resist corrosion and high temperatures, is contained in one of that company's publications. Bulletin D-17.

Cyanides and Salts

Metallurgists will find valuable information in an 80-page booklet published by R & H Chemical Department of E. I. du Pont de Nemours Co. Technical information on the heat treatment of steels with cyanides and salts is presented in a lucid manner. Bulletin D-29.

Recuperators

The complete story of recuperators built by Carborundum Co. for industrial furnaces is told in a readable booklet. The range of types available is described and the operating conditions are outlined in a clear manner. Bulletin F-57.

Nickel Steel

International Nickel Co. is publishing an illustrated newspaper called "Nickel Steel Topics" which contains technical, semi-technical and news articles dealing with the production, treatment and uses of nickel alloy steel. Bulletin Ju-45.

Refractories

A semi-technical booklet prepared by Norton Co. gives valuable information on the manufacturing processes and the various industrial applications of fused alumina (Alundum), silicon carbide (Crysolon) and fused magnesia refractories products. Bulletin J-88.

Globar Elements

Globar electrical heating units and a variety of accessories for their operation have been catalogued by Globar Corp. A list of the standard industrial type heating elements and a coordinated list of terminal mountings and accessories is included. Bulletin N-25.

Liquid Baths

A competent discussion of liquid baths for heat treating steel at temperatures from 350 to 1800° F. appears in a recent publication of E. F. Houghton & Co. A valuable chapter is devoted to the proper design of furnaces for use with liquid baths which lists 20 general furnace requirements. Bulletin Ja-38.

Titanium in Steel

An elaborate catalogue prepared for technical readers describes the use of ferro-carbon titanium in steel. Titanium Alloy Manufacturing Co. prepared it. The application of titanium in steels for forgings, castings, rails, sheets and plates is thoroughly described. Bulletin J-90.

Homo Tempering

The use of the Homo furnace in tempering is described in detail in a booklet prepared by Leeds & Northrup Co. Photographs and data show the range of sizes in the line of Homo furnaces. Emphasis is laid on the advantages of the Homo method of tempering. Bulletin D-46.

Super Blowpipes

The advent of natural gas has made the replacement of many burners imperative. American Gas Furnace Co. describes in an illustrated folder blowpipes, ribbon burners, cross-fires, hand torches, etc., which are suitable for use with natural gas, propane and butane. Bulletin Ja-11.

New Microscope

A new low power binocular microscope is offered to metal men by Carl Zeiss, Inc. A booklet to describe it has been prepared. The new microscope is valuable in examining fractures, surfaces, etc., at magnifications from 4 to 31 diameters. Bulletin MIK-464e.

Heating Units

An unique and very useful device for calculating heating units when figuring coiled units, covering wattages from 275 to 1000, has been prepared by Hoskins Mfg. Co. Two slotted cards are clamped back to back through which various data can be read by adjusting a card which slides between. Bulletin D-24.

Darkfield Microscopy

Comparison is made of darkfield and brightfield metallographic examination in a 16-page publication of E. Leitz, Inc. The equipment necessary for darkfield microscopy is described and prices are given. Several sets of micrographs of the same field contrast the two methods of illumination. Bulletin Ja-47.

Fatigue Testing

That much discussed topic—fatigue testing—is covered in a publication of Thompson Grinder Co. Interesting data on fatigue of metals and a description of the rotating beam type of fatigue testing machine are presented. Bulletin D-23.

Cast Vanadium Steel

Jerome Strauss and George L. Norris have written a technical booklet for Vanadium Corp. of America describing the properties developed by steel castings containing various percentages of vanadium. The information given is complete and authoritative. Bulletin S-27.

To Prevent Rust

The well known rust preventive, No-Ox-Id, is now available from Dearborn Chemical Co. as a foundation for paint. It is available in the colors red, gray or black. A booklet explains how maximum resistance to corrosion can be obtained. Bulletin Ju-36.

American Society for Steel Treating,
7016 Euclid Ave., Cleveland.

Please have sent to me the following literature as described in the March issue. (Please order by number.)

Name
Position
Firm
Address

GIVES ACCOUNT OF WIRE METALLURGY

H. W. Graham at Worcester in January Speaks to 150

By R. R. Tatnall

The January meeting of the Worcester chapter saw the inauguration of an annual Wire Meeting. The attendance indicates that wire manufacturers are eager to learn more about an industry which was born in this section of the country.

Sixty-two members and guests met for dinner and enjoyed a short coffee talk by Harry Arter, continuing the relation of his recent experiences in Russia. This was the sequel to his talk at the December meeting.

The speaker of the evening was H. W. Graham, general metallurgist with the Jones & Laughlin Steel Corp. A total of 150 men gathered to hear his address on "The Metallurgy of Wire Manufacture." Some of the high lights follow.

Carbon cannot be depended upon alone to give uniform physical properties. Manganese increases hardness also, but with less loss of ductility than carbon. Silicon is a hardening element, but tends to induce seaminess in the lower carbon steels. Aluminum removes iron oxide from steel, and also acts to preserve toughness under cold working. Copper, in a range of 20-30% is used to protect steels from corrosion in such uses as fence wire. Inclusions have little effect on the physical properties.

Patenting is a heat treatment used to improve the properties of high strength wires, and in this operation time intervals and temperature levels are extremely important.

Resilience of spring wire is an important quality for this application, and is too little understood. The phenomenon of embrittlement under cold work is important to the manufacturer drawing very fine sizes of wire, as it determines the number of intermediate annealings which are necessary to continue the drawing.

In closing, Mr. Graham stated that there is a place in today's industry for the physicist, to answer such questions as to wear, friction, and plastic flow of metals.

An animated discussion period followed the conclusion of the talk, including such subjects as a comparison of torsion and bending tests; aging of steel; importance of grain size; machinability of steels; the effect of sulphur on the scaling of steel, etc.

REVIEWS RECENTLY FOUND NICKEL USES

Ontario Members Hear Survey of Latest Applications

By J. W. McBean

At the February meeting of the Ontario chapter at Hamilton, the dinner was followed by an appropriate coffee talk on "Stock Taking," as applied to the present situation in Canada, by Russell T. Kelley.

The technical paper on the "Present Day Uses of Nickel" was prepared by C. A. Crawford of the International Nickel Co., but he was unable to be present, and the paper was given by Charles McKnight, who had some years ago given us a very interesting account of the striking advances in the use of nickel up to that time.

Some of the uses of nickel are due to its low solubility in caustic solutions and the fact that its salts are not toxic.

The demand for monel metal has brought in new problems in manufacture as the present ore source varies a great deal in the relative amounts of nickel and copper, whereas the former ores had a fairly constant ratio of 2 to 1. Monel metal is found to make an excellent welding rod for cast iron. Various modifications of it are being made for special purposes, for instance with 3½% aluminum it can be heat treated to 300 Brinell for use in ball check valves.

One of the newer alloys, Inconel, contains 80% nickel, about 12-14% chromium and 4 to 6% iron, and is proving to be valuable in the dairy as well as other fields, better than pure nickel and easier to keep clean. It is good for springs at high steam temperatures, and also resists erosion and corrosion and gives a long life for heating elements of stoves.

The various stainless and heat resisting nickel steels are finding new uses, and a new nickel nitriding steel gives an improved core with only a small reduction in case hardness. A cast iron containing about 14% nickel gives great resistance to both heat and corrosion.

NEW ROUND CHART RECORDER

Get Booklet Describing Latest L. & N. Instrument by Writing to A. S. S. T.

Low cost dependability in temperature measurement and recording is the great asset of the new Leeds & Northrup round chart Micromax indicating recorder, which brings the outstanding reliability and the easy, low-cost maintenance of the motor-driven null recorder to a price class that has never enjoyed these advantages before.

A note to the A.S.S.T. offices, 7016 Euclid Ave., Cleveland, will bring you full information from the manufacturers.

TELLS RESULTS OF STUDIES ON AGING

Dr. Masing of Germany Gives New Yorkers Latest Data

By F. H. Clark

The New York chapter was most fortunate in having Dr. Georg Masing of Siemens-Halske Co., Germany, speak on the "Age Hardening of Metals" on Feb. 20.

According to Dr. Masing, precipitation hardening occurs in many more alloys than are ordinarily considered age hardenable. Critical dispersion of one metal in another may be considered the cause of increase in hardness during heat treatment. When the hardness begins to fall off after further heating the decrease in hardness may be assigned to coalescence of the dispersed phase with some redissolving of the precipitated particles.

Age hardening causes a drop in the elongation and an increase in the electrical resistance of the alloy but the maximum resistance does not correspond to the maximum hardness as the former occurs at a higher dispersion. In general, corrosion resistance decreases during age hardening except with duralumin where the opposite is true. Age hardening can be studied by X-ray methods. By far the best method is the intensity measurement of diffraction lines.

Some of the disadvantages of precipitation hardening are not realized. For example, an alloy of 0.05% carbon and iron shows age hardening when quenched below the critical range. The practical significance of this is that in the manufacture of low carbon steel wire, quenching was substituted for annealing to save time but brittleness during drawing was encountered due to age hardening of even such very small amounts of carbon.

Dr. Masing said that permanent magnet steel had a high coercive force due to the highly dispersed carbides. In Germany, iron-tungsten alloys without carbon have been developed with high coercive force by means of age hardening and have been found to be stable at somewhat elevated temperatures which cannot be said for the ordinary magnet steels containing carbon.

The prolonged discussion following the meeting showed that alloys of silicon dissolved in aluminum and alloys of silver dissolved in copper do not age harden while magnesium dissolved in aluminum and copper and aluminum dissolved in silver do age harden.

E. H. DIX TELLS PITTSBURGH MEN ABOUT ALUMINUM ALLOYS

January Audience Totals 150

By George P. Halliwell

The January meeting of the Pittsburgh chapter was held in the Keystone Athletic Club. E. H. Dix of the research laboratories of the Aluminum Co. of America gave a very interesting talk before 150 members and guests on the subject of aluminum and its alloys.

Although strong aluminum alloys are being heralded as substitutes for steel, Mr. Dix pointed out that aluminum could not justly be called a competitor since its annual production was about 1/10 of 1% of that of steel. The greatest use of aluminum alloys is in the field of transportation where a high strength-weight ratio is at a premium. Recent statistics show that 36% of the annual production of aluminum is used in this field followed by 16% for cooking appliances, 14% in electrical conductors and 12% in electrical devices and machinery.

A novel use of thin aluminum foil is its introduction as heat insulation material in milk cans and containers to obtain still air in the annular space. Mr. Dix gave us a sidelight on the present depression when he told us that several new "depression" alloys had been developed to meet specific needs and are now being produced on a production basis. One of the interesting features of the talk was a set of slides showing the comparative properties of the respective light alloys.

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HEAT RESISTING ALLOYS

DR. O. E. HARDER, Chairman, Battelle Memorial Institute, Columbus, O.; E. C. Bain, F. M. Becket, Dr. F. A. Fahrenwald, E. D. Fintermann, H. H. Harris, M. A. Hunter, C. M. Johnson, T. H. Nelson, N. B. Pilling, L. J. Stahery, E. H. Stilwell, W. B. Sullivan, F. K. Ziegler.

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MACHINABILITY OF STEEL

PROF. O. W. BOSTON, Chairman, University of Michigan, Ann Arbor, Mich.; A. L. Boegehold, H. J. French.

MELTING OF STEEL

G. V. LUESSEN, Chairman, Carpenter Steel Co., Reading, Pa.; George Batty, G. A. Dornin, J. P. Gill, Dr. C. H. Herty, Jr., O. K. Parmiter, Dr. G. B. Waterhouse.

NITRIDING

DR. V. O. HOMERBERG, Chairman, Massachusetts Institute of Technology, Cambridge, Mass.; H. M. German, V. T. Malcolm, H. W. McQuaid, P. C. Osterman, R. Sergeson, W. L. Snyder.

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BOLTON TELLS CINCINNATI OF HEAT TREATING CAST IRON

Pictures Future Possibilities

By N. C. Strohmenger

At its January meeting, the Cincinnati chapter had presented by J. W. Bolton, chief chemist and metallurgist for Lunkenheimer Co., an interesting talk on the subject of "The Nature of Cast Iron and Its Heat Treatment."

After giving a short history of cast iron, he explained the iron-carbon diagram with relation to the structures obtained by various rates of cooling. He went into detail in regard to the effects of different amounts of carbon, silicon, chromium, nickel, sulphur, phosphorus. We were told how cast irons are successfully quickly aged by annealing, softened to machine best, properly quenched and drawn without cracks occurring, and of the more recent developments of nitriding. Along with the heat treatments of these irons we were given the resulting microscopic structures and physical properties usually obtained.

This talk, remarkably conveyed and discussed, made us realize more than ever that developments made with cast iron in the more recent years will make them come more into use.

ROCHESTER GOES ON A GOLD STANDARD AT JAN. 9 MEETING

Study Gold Mining, Economics

By Joseph M. Keating

A combined meeting of the Rochester chapter of the A. S. S. T. was held with the superintendents and production managers group of the Rochester Chamber of Commerce on Jan. 9 at the Chamber of Commerce meeting room. The speakers of the evening were invited by the chapter, and were H. W. Shoemaker, of the Dorr Separator Co., New York, and C. G. Batement, secretary of the Ontario Mining Association.

Mr. Batement spoke of the interest gold has held through the various ages to the present time and gave an interesting picture on the romantic side of gold.

Mr. Shoemaker discussed the detailed method of gold recovery from the quartz rock, first by grinding the rock to free the gold and the solution of the gold in sodium cyanide—the precipitation of metallic gold by displacement with zinc dust—the treatment of the precipitated gold sludge by Dorr thickener and finally the roasting to volatilize the metallic zinc.

Mr. Batement emphasized that there are no hard times in a gold mining camp, and stated they are working overtime to meet the scheduled output which he estimates will run about \$67,000,000 for 1933. A sample nugget worth \$350 was exhibited together with a quartz stone flecked with gold dust taken from the Kirkland Mines in Ontario.

A. F. A. MEETING JUNE 19-23

The 1933 annual convention of the American Foundrymen's Association, to be held in Chicago, June 19 to 23, will emphasize in its sessions such timely topics as foundry costs, safety plans, materials handling, and technical problems relating to the casting of steel, gray and malleable iron and non-ferrous metals.

New products, new equipment and the latest improvements in standard equipment will be on display at the Foundry and Industrial Exposition to be held that week in Stevens Hotel.

HONOR SUSTAINING MEMBERS AT DINNER

Philadelphia Men Arrange an Interesting February Meeting

By Adolph O. Schaefer

As a token of the Philadelphia chapter's appreciation of its sustaining members, the February meeting of the chapter was dedicated to them. This has grown to be a custom of the chapter in recent years.

Representatives of the companies holding such memberships were entertained at a dinner preceding the meeting. In a series of short talks, these representatives in various ways expressed their interest in the A. S. S. T., and in the Philadelphia chapter.

Among others, G. W. Keller, of Brown Instrument Co., reviewed his company's interest in the chapter since 1915 when Bill Eisenman first called a meeting in this city.

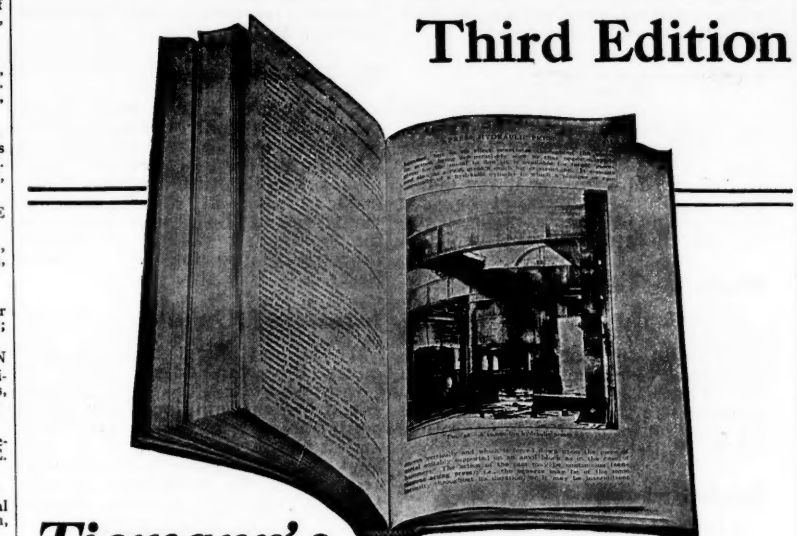
J. W. Harsch, of Leeds & Northrup Co., said that industry was demonstrating its sense of the value of the A. S. S. T. by retaining its sustaining memberships during these years when expenditures are carefully watched.

Dr. O. E. Harder then gave a talk, which was of great interest to the gathering. He reviewed all of the work done in recent years in the various fields of metallurgy. He pointed to many spots where more work is needed, and suggested the possible lines of advance in many fields.

Naturally a long discussion followed. It might be said that this ranged from cabbages to kings, for it actually covered such dissimilar interests as molybdenum high speed steel and the way to retain one's soup at a banquet.

One member recounted his difficulties with machines for polishing micro-specimens, and another his experiences with cylinder blocks for internal combustion engines.

A large part of the discussion was given over to molybdenum high speed steel, since there was present a delegation from the Frankford Arsenal who had worked with this material.



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EXPOUNDS 3 WAYS TO HARDEN STEEL

French Tells Detroit of Age, Quench and Case Hardening

By O. W. McMullan

H. J. French of International Nickel Co. was the speaker at Detroit chapter's February meeting. He spoke on "Some Aspects of the Hardening of Steel." R. M. Schenck was technical chairman for the evening.

In discussing age hardening, Mr. French emphasized three factors: (a) the presence of soluble compounds increasing in solubility with increase of temperature, (b) a slow rate of precipitation of the particles during aging, (c) the formation of the particles in a critically dispersed condition.

The effects of quenching were then described. Fast cooling rates show smooth cooling curves, but slower rates show a range of instability beginning at about 1100° F. Spray quenching is not faster than immersion at the beginning, but cools faster at the lower temperatures. Lack of uniformity in cooling was stated to cause more trouble from cracking than fast cooling at low temperatures. The critical cooling rate was defined as that which is just fast enough so that no troostite is formed.

Nitriding gives best results when starting with a sorbitic structure. By the use of alloys this can be obtained on air cooling. A new development is the age hardening of the core by the use of alloys containing both nickel and aluminum. The age hardening develops only during the long period of nitriding and not during the draw previous to nitriding and therefore does not interfere with machining previous to nitriding.

F. B. DRAKE HONORED NAUTICALLY

Frank B. Drake, National Director of the Society in 1931 and 1932, was recently re-elected commodore of the Corinthian Yacht Club, and the event was duly recorded in the newspapers of San Francisco. Mr. Drake is better known in the east as president of Johnson Gear & Mfg. Co., but the far west evidently knows him well also as skipper of the ketch Aloha.

ST. LOUIS DEVOTES MEETING IN JANUARY TO DIE CASTING

Enjoy Talk by D. L. Colwell

By F. D. Burnett

The St. Louis chapter met Jan. 20 at Benish's Restaurant. E. J. Kumm, vice-chairman, presided in the absence of the chairman, E. H. Meyers. After the excellent meal, new members were presented. Cigars were passed, and everyone settled back in anticipation of an interesting talk on "Die Casting," by D. S. Colwell, whom the chapter has been desirous of obtaining for a meeting for some time.

Mr. Colwell spoke at length on the importance of the metallurgy of die casting metal in obtaining the desired physical properties of the finished castings. His many slides showed tabulated results of tests made on various samples containing increasing amounts of zinc. The test for longevity of the casting is made by subjecting the sample to steam for a period of time. By this method, the condition of a casting after twenty-five years can be predicted after a few days' test.

The chapter was unanimous in its appreciation of the splendid talk presented by Mr. Colwell, and it is hoped that we may have the pleasure soon again of his coming with us.

TALKS GAS HEAT TREATING

Boston Hears Cowan Describe Furnaces For Nitriding and Gas Carburizing

By Howard E. Handy

The February meeting of the Boston chapter was held at Massachusetts Institute of Technology, Cambridge, on Feb. 3. The meeting was preceded by a family-style dinner served in Walker Memorial.

The guest speaker was R. J. Cowan, metallurgist, Surface Combustion Corp., who spoke on the "Application of Gas to Heat Treating." Mr. Cowan spoke in particular about the development of furnaces for nitriding and carburizing. The speaker made his talk very interesting and considerable discussion followed.

Through the courtesy of Bausch & Lomb Optical Co. the members had the opportunity of seeing the film, "The Eyes of Science," which portrays the principles and use of optical instruments.

SYRACUSE REPORTS 5 GOOD MEETINGS

Welds, Tubes, Burners, China and Research are Subjects

By Charles R. Wade

Syracuse chapter listened to an interesting address and saw a moving picture on the subject of the "Manufacture of Seamless Tubing" at their meeting on Feb. 14. The speaker was Charles J. Lundvall of National Tube Co.

Mr. Lundvall's address traced the history of pipe from bamboo tubes to the present large industry which is the outgrowth of the gas lighting system. The moving picture titled "Walls without Welds," clearly shows the whole process of the manufacture of tubes from the mining of the ore to the finished product. All of the important steps were clearly illustrated by animated drawings which gave a very easily understood outline of the process.

The main discussion centered about the uses for the cement lined pipe which Mr. Lundvall showed the audience. The cement lining is cast in the pipe centrifugally. This pipe was developed to resist the corrosion of waters having high oxygen content. This piping is used in places where water has been aerated for purification.

Previously, in October, the chapter heard Professor Hart of Syracuse University speak on "Hash" an interesting talk on Welding. In November Mr. Cruthers of the Engineering Department at Cornell University explained a new type of oil burner employing high pressure oil and low pressure air.

In December C. H. Parmelee of Onondaga Pottery Co., makers of the famous Syracuse China, spoke to the chapter. The ladies were invited to this meeting and their main interests lay in the moving picture showing the manufacture of fine china as well as in the very interesting exhibit of finished china. Mr. Parmelee gave an illustrated lecture on the furnaces and kilns used in the pottery industry.

W. H. Wills, metallurgist of Ludlum Steel Co., spoke on "The Laboratory as a Factor in the Tool Steel Industry," at the January meeting. His lecture was illustrated by interesting lantern slides and he gave some very interesting examples of tool failures and their causes.

ST. LOUIS HEARS SERGESON

Discusses Possibilities of Nitriding at Popular Meeting on Feb. 10

By F. D. Burnett

The regular monthly meeting of the St. Louis chapter on Feb. 10 was called to order by the chairman, E. H. Meyers after the usual fine dinner. Mr. Meyers spoke briefly on the value of our meetings and discussions to the average heat treater.

The meeting was then turned over to Robert Sergeson of Republic Steel Corp., who delivered a very interesting and highly appreciated talk on nitriding. For some time this chapter has been desirous to obtain authoritative information on this subject.

As a result, the talk was unusually well received and a lengthy discussion ensued.

LEARN METALS IN AIRCRAFT

Hartford Members Hear H. J. Fischbeck

Outline Progress in Airplane Metals

By J. P. Howley

The December meeting of the Hartford chapter was held on the 13th. Dinner was served at the City Club and the meeting held afterwards in the Hartford Electric Light Building. H. J. Fischbeck, chief metallurgist, Pratt & Whitney Aircraft Co., spoke on "Metallurgy in Aircraft Industry." Mr. Fischbeck first gave a very interesting outline of developments in the aircraft industry during the past thirty years.

Mr. Fischbeck's interesting talk has been reported several times in the REVIEW. A complete account appears in the May, 1932, number.

DESCRIBES NEW "STABILOG"

New Temperature Measuring Instrument Description Available Through A. S. S. T.

The Potentiometer StabiLog combining the advantages of StabiLog control and potentiometer temperature measurement, is the latest addition to the line of control equipment made by Foxboro Co., Foxboro, Mass.

By this instrument the 100% automatic control of the StabiLog system is made available for temperatures up to 2800° F. A preliminary description has been prepared, and copies may be obtained by writing to American Society for Steel Treating, 7016 Euclid Ave., Cleveland.

Programs of the Chapters

Addresses of Secretaries

BOSTON—H. E. Handy, Saco-Lowell Shops, Biddeford, Me. Apr. 7 May 5	BUFFALO—T. H. Burke, Otis Elevator Co. Apr. 13—Machinability J. V. Emmons May 11—Annual Meeting	CHICAGO—John Comstock, Room 1724, 122 So. Michigan Ave. Apr. 13—..... Zay Jeffries May 11—Stainless Steels..... T. H. Nelson	CINCINNATI—N. C. Strohenger, Tool Steel Gear & Pinion Co. Apr. 13—Tri-Chapter Meeting in Cincinnati May 11—Airlines	CLEVELAND—H. B. Pulsifer, Ferry Cap & Set Screw Co. Apr. 13—Aluminum F. C. Frary and G. D. Welty	COLUMBUS—L. H. Marshall, 271 Winthrop Rd. Apr. 13—Tri-Chapter Meeting in Cincinnati	DAYTON—F. M. Reiter, Dayton Power & Light Co. Apr. 13—Tri-Chapter Meeting in Cincinnati May 8—Plant Visit	DETROIT—Gordon Webb—410 Donovan Bldg. Apr. 10—Steel C. H. Herty, Jr. May 8—Plating G. B. Hogaboom	GOLDEN GATE—R. S. Hirst, 2223 Channing Way, Berkeley, Calif. April—Span Supreme Roebbing Co. May—Something New Fansteel Products Co. June—Graduation Night, Metals Course..	HARTFORD—J. Allison, Union Drawn Steel Co. Apr. 11—Steel Castings E. S. Gardner May 9—Open Discussion	INDIANAPOLIS—R. L. Fitzsimmons, 1426 No. Drexel Ave. Apr. 4—Aluminum S. A. Silberman May 2—Pyrometry	LEHIGH VALLEY—H. Gifford, Bethlehem Steel Co., Bethlehem. Apr. 7—Deep Drawing Joseph Winlock May 5—Tool Steel A. W. F. Green	NEW HAVEN—R. T. Porter, Heppenstall Forge Co., Bridgeport. Apr. 20—Age Hardening H. A. Bedworth May 18—Steel Personality B. F. Shepherd	NEW JERSEY—J. H. Johnson, 345 Mountain Ave., Springfield, N. J. Apr. 10—Magnesium Alloys..... John A. Gann May 8—Sustaining Member Night	NORTHWEST—Alexis Caswell, 200 Builders Exchange Bldg., Minneapolis. April—Tool Steels A. J. Scheid, Jr.	ONTARIO—L. F. Fitzpatrick, Flexible Shaft Co., Toronto. Apr. 7—Welding	PHILADELPHIA—A. O. Schaefer, Midvale Co. Mar. 31—Nitriding A. B. Kinzel Apr. 28—Steel Castings R. A. Bull	PITTSBURGH—H. L. Walker, Box 521, N. S. Station Apr. 13—Steel Castings	RHODE ISLAND—C. G. Peterson, Providence Gas Co., Providence. Apr. 7 May 8	ROCHESTER—I. C. Matthews, Eastman Kodak Co. Apr. 10—Alloy Steels T. H. Wickenden May 15—Annual Meeting	SPRINGFIELD—E. H. Abbe, 17 Bayonne St. Apr. 17—Welding J. C. Hodge	ST. LOUIS—F. D. Burnett, Railway Exchange Bldg. Apr. 21	TRI-CITY—H. A. Deane, Deere & Co., Moline. April 4—Open	WASHINGTON—S. J. Rosenberg, Bureau of Standards Apr. 21	WORCESTER—Theodore Packard, 1 Freeland St. Apr. 12 or 13—Magnesium J. H. Gann May 10 or 11—Pressed Steel	YORK—C. M. Strickler, General Machine Works. Apr. 12—Arc Welding J. C. Lincoln
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FIRST "STAINLESS" WAS MADE IN 1821

J. P. Gill Tells York of Early Work in Stainless Metals

By F. J. Allen and G. J. O'Neill

The January meeting of the York chapter held on the 11th proved very interesting to its members and the many industries of the territory who use stainless steels in their manufacturing processes.

The lecturer, J. P. Gill, metallurgist of Vanadium Alloy Steel Co., used as his subject "Stainless Steels or Heat and Corrosion Resisting Metals." Mr. Gill explained that the history of stainless metals is older than usually recognized, some original effort dating back to 1821 is on record. Wood and Clark in 1872 gave complete instruction for the manufacture of stainless steels. During 1911 to 1913 patents of more commercial value were developed.

He described the analysis of various types of stainless steels marketed at present. He described the desirability of proper surface film and the difficulty in obtaining surface smoothness, saying that the nickel content develops the surface film. Eleven per cent chromium content is the minimum amount to resist corrosion. Six per cent chromium content will not resist atmosphere corrosion half as well as twelve per cent chromium.

The universally known 18-8 stainless steel is considered austenitic in structure. The 18 and 8 steels most widely used carry a carbon content usually under 0.15%. Stainless steel, as a rule, should not be in service be subject to temperatures in excess of 1100° F. for long time intervals. The 18-8 types have a brittle range between 1100° F. to 1600° F. due to carbide precipitation.

Prolonged discussion following the lecture signified the interest displayed by those who heard Mr. Gill.

HEAR HEAT TREATING TALK

Springfield Hears Korp Expound Some Practical Points of the Subject

By Earl H. Abbe

Jordan Korp of Leeds & Northrup Co. recently gave a very interesting talk to the Springfield chapter on "Practical Heat Treating."

He brought up the following factors which must be met in order to properly heat treat any material: Critical temperature, number of degrees above critical required for particular use to which the part is to be subjected, rate of heating with respect to furnace, time at heat, temperature of quenching medium, agitation of quench, and correct draw.

Mr. Korp's talk proved to be extremely interesting and a large number of members and friends turned out for the meeting.

Electro-Alloys Co., Elyria, O., makers of high temperature castings, have retained as consultants the Victor Instrument Co. of Cleveland, X-Ray specialists, to furnish radiographs of any casting at only a slight additional cost to the customer.

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If any member wants to keep his copies of the issues of Vol. XX, July, 1932, through December, 1932, in loose form and yet have a bound volume for his library, a complete bound volume will be supplied for \$5, postpaid.

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EXPLAINS WAYS OF MAKING STAINLESS

W. B. Arness Speaker at Big Meeting Held in Baltimore

By Stanley P. Watkins

Feb. 27 will be long remembered by those attending the monthly meeting of the Baltimore group as the most interesting, instructive, and well attended meeting held since its organization. This very successful meeting was presided over by our efficient chairman, Alex. L. Feild, who introduced the speaker of the evening, W. B. Arness, metallurgist of the Rustless Iron Corp. of America. Mr. Arness' subject was "Stainless Steels".

As an introduction, Mr. Arness briefly reviewed the source of chromium and nickel and the general method whereby they were obtained from their ores. He next discussed at some length the various processes for the manufacture of the stainless steels, stating that they were made in either an electric arc or an induction furnace. The general method is to melt the basic charge consisting of carbon steel scrap, and after proper refining add the chromium in the form of low carbon ferro-chrome and the nickel as pig nickel. Mr. Arness described at length the process used by his company, which departs somewhat from the orthodox methods, inasmuch as the chromium is reduced directly from the ore by the use of ferro-silicon.

The function of chromium and nickel in converting iron-carbon alloys into rust-resisting material was explained by Mr. Arness as due to the stability of pure nickel and the instability of pure chromium. He explained this by the fact that nickel does not readily combine with oxygen, and is therefore quite stable, whereas chromium combines readily with oxygen forming a thin oxide film which protects the metal from further oxidation, and when alloyed with iron imparts these properties to the resulting alloy.

A very interesting moving picture was shown, depicting the entire process used at the plant of the Rustless Iron Corp., beginning with the charging of the furnace, and showing in turn, slag-off, tapping, casting, ingot stripping, rolling of billets and bars, and ending with surface grinding and inspection of billets.

Great interest was shown by those in attendance in the display Mr. Arness had assembled in one corner of the room. This display showed numerous articles manufactured from the rustless type alloys, and forcibly demonstrated the almost unlimited field of usefulness for these alloys. In addition, a large number of specimens were shown which illustrated the various quality tests made on these alloys to secure adequate product control.

The meeting adjourned at a late hour after considerable discussion by various ones in the audience, and judging from the comments voiced it was thoroughly enjoyed by all.

PHILADELPHIA MEN STUDY ALLOY STEEL

H. J. French Technical Speaker; Coffee Talk on Ordnance

By Adolph O. Schaefer

Philadelphia's Steel Treathers turned out en masse on Jan. 27 to hear H. J. French of International Nickel Co. describe the "Trends and Developments in Alloy Steels".

The speaker and the subject raised no hopes that were not justified. In as brilliant an address as it has been the chapter's fortune to hear, Mr. French covered the broad field of modern alloy steels, and brought out his points clearly and effectively.

The subject was developed by what Mr. French calls the "case" system. Many examples of special conditions, under which special alloys performed efficiently, were shown to lead up to the thoughts behind the talk.

The dinner preceding the meeting was addressed by Lieutenant Marion R. Kelley, U. S. N., on "Modern Ordnance". Lieutenant Kelley developed the history of the wavering supremacy of projectiles and armament. The course of history has often been determined by this balance or lack of balance, and the part of the steel industry in its recent chapters was very interesting.

Russell, Burdall & Ward Bolt and Nut Co., Port Chester, N. Y., has been licensed by Dardelet Threadlock Corp. to manufacture and sell "Rivet-Bolts" and other bolts and nuts with the Dardelet self-locking thread.

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METALLURGIST: About 20 years' experience in the manufacture, sales and fabrication of special steels, including stainless, nitriding, tool, saw and magnet steels. Excellent record of achievement. Box 3-10.

METALLURGICAL ENGINEER: Holds degree of B. S. in Metallurgical Engineering. Experience includes general foremanship of merchant bar mill for large producer. Recently engaged in sales promotion and contact work for same company. Box 3-15.

PRACTICAL HEAT TREATER: Fully capable of taking charge of any heat treating department. Experience is wide and sound. Would like position with progressive firm. Details upon request. Box 3-20.

BOYNTON AND JONES EXPLAIN BRIDGE MAKING AT CLEVELAND

Show Movie, "Span Supreme"

By H. B. Pulsifer

The interest of the Cleveland chapter was well maintained at its fifth meeting of the season when Dr. H. C. Boynton and Capt. C. M. Jones of the John A. Roebling's Sons Co. brought the famous seven reel movie of the George Washington bridge for the meeting on Feb. 6.

Dr. Boynton, chief metallurgist of the Roebling Co., opened the story of the construction of this most remarkable structure with a few general remarks. He outlined briefly the manufacture of the wire and the properties it has in the great cables that support the bridge floor. He then presented Capt. Jones, assistant chief bridge engineer, who explained the films as they portrayed the making of steel, rolling of rod, drawing of wire and construction of the suspension bridge.

The meeting opened with a dinner at the Cleveland Club at which some 85 members and guests assembled. Over 200 heard the talks later. It was Sustaining Members' Night with the representatives of the companies at the speakers' table. After the repeat Chairman Van Horn introduced John W. Love, business writer of the *Cleveland Press*, as the first speaker. Mr. Love had some very encouraging ideas about the possibilities of industrial activity. He offered some keen ideas about the future.

LAYS GHOST OF THE TERM "SEMI-STEEL"

MacKenzie Tells New Haven About Cast Iron Progress

By P. L. Clark

The February meeting of the New Haven chapter was held Feb. 24 in the Chase Auditorium, Waterbury. The speaker of the evening was James T. MacKenzie, American Cast Iron Pipe Co., Birmingham, Ala., and the subject, "Cast Iron." Mr. MacKenzie outlined briefly developments in the metallurgy and applications of cast iron in the last ten years.

Some interesting charts were shown illustrating volume temperature relations during cooling which brought out very forcibly the strains that are set up in the cooling of castings at points where the sections change.

Mr. MacKenzie laid the ghost of the term "semi-steel" most effectively, disclosing it as high test cast iron, the steel simply coming from the use of steel in the mix as a diluent, the steel now being frequently added to the ladle in the form of a molten addition.

The lecture was concluded with a brief talk on the newer alloy irons including cast iron for nitriding. A rather lively discussion followed the conclusion of the talk. The attendance was a little over 70.

DR. W. F. EDWARDS DIED JAN. 12

Notice has been received of the untimely death on Jan. 12 of Dr. William F. Edwards, director of the laboratories of United States Testing Co., Hoboken, N. J. Mr. Edwards had been a member of the Society since 1925.

PERFECT STRESS-STRAIN DEVICE

Baldwin-Southwark Corp., Philadelphia, has perfected a stress-strain recorder and controller, guaranteed accurate to three-quarters of one per cent of loads from 10 to 100% of capacity. Details may be obtained from that company.

250 ATTEND FINE CHICAGO MEETING

President's Night Honored by Several Prominent Guests

By E. C. Blocks, Jr.

The Chicago chapter held its annual President's Night on Jan. 12. Approximately 100 members and guests attended dinner while another 150 came in afterwards.

Directly after dinner Claire O. Musser of J. C. Deagan, Inc., a member of the Chicago chapter, rendered some beautiful xylophone music and explained the underlying principle of the new instrument.

Chairman Walther Mathesius then called the meeting to order and introduced many of the prominent guests of the evening, some of whom were T. E. Barker, A. T. Clarage, W. B. Coleman, W. H. Eisenman, and Robert S. Archer. He then explained the accomplishments of the executive committees and made mention of the fact that by very economical control the finance committee will close the year with a balanced budget.

The society's president, W. B. Coleman, then gave an interesting talk on the workings of the national executive committees. He urged all members to keep industries interested, because returns from advertising, etc., make up two-thirds the revenue of the Society, whereas membership dues made up only one-third.

The meeting was next turned over to W. H. Eisenman, national secretary, who with jest and humor kept the crowd in hearty laughter for a good fifteen minutes.

A. T. Clarage, national treasurer, acting as technical chairman, then introduced the speaker of the evening, E. J. Janitzky, metallurgical engineer of Illinois Steel Co., South Works. Mr. Clarage promised the meeting a surprise and every man attending got it.

Mr. Janitzky expressed the interrelation of physical properties of steel in a manner never before thought of. He had numerous charts flashed upon the screen which vividly explained his formulae and conclusions. This paper, which we are all looking forward to reading and studying in its detail, is expected to be published in technical journals some time in the near future.

After a very healthy discussion of the paper the meeting was closed by Chairman Walther Mathesius.

EXPLAINS PLACE OF CYANIDE IN HEAT TREATING OF STEEL

Gager Speaks at Cincinnati

By N. C. Strohmenger

At the February meeting of Cincinnati chapter, Walter M. Gager, metallurgist, E. I. Du Pont de Nemours & Co. (R. & H. Chemical Department) Niagara Falls, discussed the subject of "Sodium Cyanide and Its Application to the Steel Treating Industry."

We had a very interesting and valuable discussion after this paper was presented. It was stated by the speaker that the use of drawing salts for tool steels was unsatisfactory at temperatures of 2300° F. but he did recommend them for temperatures as high as 1400° to 1500° F.

Questions were asked about the use of calcium cyanamide in cyanide hardening baths, which was answered by saying that when a satisfactory method could be devised to remove the calcium film that calcium cyanamide would find extensive use.

Calcium cyanamide will not melt readily and for this reason a mixture of salts forming an eutectic have to be used. Question was asked as to the method used for determining absorbed nitrogen in the case of cyanide hardening. The Kjeldahl method for determining nitrogen is quite satisfactory for a moderate quantity of nitrogen, but can not be used for minute quantities. It is quite difficult to make exceedingly accurate nitrogen determinations.

DEARBORN PROMOTES E. M. CONVERSE

Earl M. Converse, formerly manager of the industrial department of Dearborn Chemical Co., Chicago, has been made vice-president of that company.

L. F. LOTTIER WITH AIR REDUCTION

Lawrence F. Lottier, member of the Detroit chapter, has become connected with the Detroit office of Air Reduction Sales Co.

F. J. KING HEADS C. G. M. A.

F. J. King, chief engineer of Linde Air Products Co., was elected president of the Compressed Gas Manufacturers' Association at the annual meeting held recently in New York.

NEW JERSEY ENDS COURSE OF SEVEN METALLURGY LECTURES

Course Was Free to Members

A course of seven lectures prepared by E. L. Roff, chairman of the educational committee of New Jersey chapter, was offered free to chapter members. The first lecture was given Feb. 3, and the remaining lectures followed on succeeding Friday evenings.

Mr. Roff was successful in securing experienced men capable of presenting their chosen subjects with authority. These subjects presented by the various speakers were:

Equilibrium diagrams—A general discussion of a few simple types occurring in metallurgy by Dr. K. Heindlhofer;

The iron-cementite diagram—Fundamentals of heat treatments, working and properties of steel by Dr. Heindlhofer;

Microstructure of steel (two lectures) by E. S. Davenport;

These covered fundamental microstructural constituents of steel, their nature, combinations, properties and relation to the iron-carbon diagram.

Heat treatment of steel—The purpose of heat treatment and the mechanism of the process explained by E. L. Roff; **Tool hardening**—Application of the principles of heat treatment to tool hardening by Jordan Korp;

Alloy steels—A general discussion of alloys in steel by John W. Sands.

YORK HAS FIRST OF 3 WELDING PAPERS

Training Welders and Tests of Welds Covered in January

By George J. O'Neill

The initial lecture of a series of three dealing with different phases in welding was delivered at the January meeting of the York chapter by T. M. Jackson, electrical engineer in charge of welds, Sun Shipbuilding and Dry-Dock Co., Chester, Pa.

The subject of the first lecture was "Class 1 and Class 2 Welds, Their Manufacture and Inspection; also Pre-qualification Tests for Welders."

After dealing with the events leading to the issuance of the Welding Code and with its general effect on industry, Mr. Jackson proceeded to outline methods of obtaining results within the code. Points particularly stressed were the training of welders, in correct practice, supervision of the application of the welding procedure and the testing and examination of the finished weld.

The lantern views which Mr. Jackson used to illustrate his lecture also showed very clearly the use of the X-ray apparatus in the inspection of the finished weld. The keen discussion which was ably handled by the speaker showed the great interest he had aroused in his audience.

GIVES RELATION OF TESTS TO QUALITY

Knowlton Tells Chicago How to Rate Merits of Metals

By A. W. Sikes

The February meeting of the Chicago chapter was held at the City Club on the 9th, and, in spite of the cold wave, about 50 members attended the dinner and some 30 to 40 arrived later to hear H. B. Knowlton, metallurgist, International Harvester Co., a member of our own chapter, give a highly instructive talk entitled "Practical Application of Metallurgical Data to Engineering Problems".

The speaker was introduced by Chairman Walther Mathesius in the absence of the technical chairman, who was unavoidably out of town.

Mr. Knowlton first gave a review of the known and well-established data on the physical properties of metals and alloys, including definitions and the units of measurement involved. From this it was an easy step to the new data which the speaker's company has been obtaining, particularly as to the hardness and tensile strength relations of certain steels and the correlation of these properties with various types of impact and fatigue tests, in an effort to determine the quality factor or merit index of the materials studied.

At the close of the meeting there were many questions from the floor which indicated the very considerable general interest in the speaker's subject as well as the confidence in his judgment and experience which the audience held.

TELLS EFFECTS OF GAS ATMOSPHERES

Lehigh Men Hear Interesting Facts from Sam Tour

By O. V. Greene

In an address before the Lehigh Valley chapter on March 3, Sam Tour, vice-president of Lucius Pitkin, Inc., gave a very interesting description of the effect of various types of furnace atmospheres.

Mr. Tour has given this talk before a number of chapters, and it therefore has been more or less completely published in the REVIEW. Consequently no attempt will be made to give an abstract of his remarks.

However, several subjects of interest were discussed after the presentation of the talk. In answer to a question, Mr. Tour stated that it might be possible to explain the difference in grain size resulting from atmospheres by considering the length of time taken to go through the critical. He pointed out that heat radiation is poorer in a high CO atmosphere than in a low CO atmosphere. It was suggested that the necessary information might be obtained by burying thermocouples in the work.

The effect of atmosphere on grain size is felt over a wide range of sizes. Pieces from 3/16" to 3/4" round or square show the same characteristics when heated in the same atmosphere.

Mr. Tour said that chromium plate had been very satisfactory in reducing scale and decarburization at 2300°F. A plate of 0.0003" to 0.0005" is deposited directly from cold solutions on steel and is quite dark and soft. Borax is also used to prevent scaling and decarburization particularly on carbon steels.

After some discussion on hardness, Mr. Tour said that it had been reported that with proper atmosphere control, high manganese oil hardening steels can be made considerably harder than usual.

AGING, SHIPS ARE WASHINGTON TOPICS

Dr. Masing and W. E. Blewett are Most Recent Speakers

By C. W. Briggs

The Washington chapter was very fortunate in having Dr. Georg Masing of Siemens-Halske Co., Berlin, Germany, to address the chapter at its February meeting on "Age-Hardening Alloys" and "Casting Aluminum Alloys." The lecturer was very interesting as Dr. Masing is one of the European authorities on these subjects.

Dr. Masing's discussion of age hardening is abstracted in a report of the New York chapter meeting elsewhere in this issue.

The latter portion of Dr. Masing's address was taken up with the problem of casting non-ferrous metals and the types of slags that are helpful to different alloys. His studies on the various alkali earth salts have produced results that are of a decided commercial value.

In January, Mr. W. E. Blewett, Jr., of the Newport News Shipbuilding and Drydock Co. spoke on material used in construction of ships. He spoke on the characteristics of some of the ferrous and non-ferrous metals used in shipbuilding. The use of welding in ship construction and corrosion by sea-water were two important topics that were considered.

NEW SIZE OF SPENCER TURBINES

The smallest multi-stage centrifugal compressor ever built for commercial purposes by the Spencer Turbine Co., Hartford, is now in standard production. This unit is self-contained, and will deliver 75 cu. ft. of air per minute at 12 oz. pressure. It is 12" in diameter and weighs 40 lb. The motor is 1/2 H.P., A.C. or D.C. This Spencer Turbo Compressor is used for individual operation of all forms of heat treating equipment, gas boosters and other devices requiring low pressure air.

BAUSCH & LOMB HEAD IS HONORED

Edward Bausch, president of Bausch & Lomb Optical Co., was guest of honor this year at the annual dinner of the Society of the Genesee, an organization of men and women who have lived in the Genesee Valley of New York State and who meet this year to honor an outstanding neighbor. Mr. Bausch, now 79 years old, started building microscopes when there were only 18 in the entire country.